UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

FEB 1 - 2013

Ref: EPR-N

Kristin Yannone, Project Manager
Bureau of Land Management
Lander Field Office
1335 Main Street
Lander, WY 82520

Re: Draft Environmental Impact Statement
Gas Hills Project In-Situ Uranium Recovery Project
Fremont and Natrona Counties, Wyoming
CEQ#: 20120364

Dear Ms. Yannone:

The U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the Bureau of Land Management's (BLM's) Draft Environmental Impact Statement (Draft EIS) for the proposed Gas Hills In-Situ Uranium Recovery (ISR) Project. Our comments are provided for your consideration pursuant to our responsibilities and authority under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C) and Section 309 of the Clean Air Act (CAA), 42 U.S.C. Section 7609.

Project Background

The Draft EIS analyzes the potential impacts of a Plan of Operations submitted by Cameco Resources (also known as Power Resources Inc.) to develop mining claims using in-situ recovery techniques in the Gas Hills Mining District. The Draft EIS presents three alternatives: the No Action Alternative, the Proposed Action Alternative, and the Resource Protection Alternative for ISR mining and processing. The Resource Protection Alternative adopts mitigation strategies for some of the significant impacts analyzed in the Proposed Action while still meeting the project purpose and need. For both action alternatives, as much as 2.5 million pounds of uranium would be produced per year over a 25-year period by using ISR methods and some combination of three feasible wastewater disposal options.

The EPA provided Preliminary Draft EIS (PDEIS) comments for the project. We appreciate that the BLM addressed many of our PDEIS comments in this Draft EIS. As a result, we have narrowed our concerns to the following issues: 1) solar evaporation pond design, 2) monitoring and underground injection control (UIC) wells, 3) wastewater disposal options, 4) phased development, 5) air quality resources, and 6) water resources.

Solar Evaporation Pond Design

The Proposed Action presents three options for handling the wastewater from the facility: solar evaporation ponds, a combination of solar evaporation ponds with forced evaporation and crystallization equipment, or a combination of UIC injection wells and solar evaporation ponds. For the solar evaporation ponds-alone option, for the maximum of 420 acre-feet of net evaporation needed in Project Year 7, the EPA calculates that over 180 acres of ponds would be needed. For the other two options, the Draft EIS does not identify either the number of ponds or the amount of evaporative surface area of ponds necessary.

Based on the design presented in the Draft EIS, the solar evaporation ponds option will not meet the current regulatory requirements of 40 CFR Part 61 Subpart W, National Emission Standards for Radon Emissions from Operating Mill Tailings, and it is unclear whether the other two options can comply with these requirements. This regulation allows for two impoundments (i.e., ponds), each no more than 40 acres. No new impoundment can be built unless it meets the work practice standards in Subpart W. In addition, an application for approval must be submitted to the EPA for the construction of any new radon source or the modification of an existing radon source, in accordance with 40 CFR §61.07. [1] Unless the impoundment facility design meets the regulatory requirements of 40 CFR Part 61, Subpart W, the EPA cannot grant its approval.

The Draft EIS states that for the options utilizing solar evaporation ponds, double liners are planned. According to 40 CFR Part 61, Subpart W and 10 CFR Part 40, Appendix A, Criteria 5A, 5E and 13, the impoundments must incorporate the basic groundwater protection standards specified by 40 CFR Part 192, Subpart D, which require a minimum of double liners with leak detection for ponds utilized in milling operations. We recommend that the Final EIS include an explanation of how the pond design details would meet these groundwater protection standards.[2]

Monitoring and UIC Wells

UIC Class V – Class I: Deep disposal wells

We recommend that the latest information from the wastewater disposal well testing program and wastewater disposal well permitting in the project vicinity be included in the Final EIS.[3] For example, groundwater sampling data submitted by Cameco on February 29, 2012, to WDEQ indicates that the Flathead may be an underground source of drinking water (USDW).

The WDEQ issued a final permit for two Class V wells (Gas Hills #1 and #2 wells) on November 3, 2011 with a minor modification issued on February 14, 2012. The Gas Hills #1 well reaches the Flathead formation (3850' depth) and is permitted to inject into the Phosphoria, Tensleep, Madison, and Flathead formations. Gas Hills #2 well is also drilled to the Flathead (5400' depth) and permitted to

---

[1] EPA is currently undertaking a review of 40 CFR Part 61, Subpart W, which may result in changes to this regulation prior to construction of the facility. (http://www.epa.gov/rpdweb00/neshaps/subpartw/rulemaking-activity.html)

[2] EPA is currently undertaking a review of 40 CFR Part 192, which may result in changes to this regulation prior to construction of the facility. (http://yosemite.epa.gov/opei/rulegate.nsf/byRIN/2060-AP43#1).

[3] See Wyoming DEQ website: WDEQ GEM database (https://gem.wqd.apps.deq.wyoming.gov/Default.aspx) and EPA UIC Program for additional information.

inject into the Cloverly, Morrison, Nugget, Phosphoria, Tensleep, Madison, and Flathead formations. These wells were permitted as Class V wells for performing injectivity tests. For Class V wells, the injectate cannot exceed MCLs or background, whichever is greater. We note that the Proposed Action Alternative anticipates the use of Class I wells for wastewater disposal. This would require that the two permitted Class V test wells be converted for permitted use as Class I deep disposal wells. Because this can be a complex process, if it becomes likely that this approach will be selected, we recommend contacting our office to discuss the process and requirements for conversion.

If the Flathead is determined to be a USDW, conversion of Class V test wells to Class I UIC disposal wells will require aquifer exemptions. Approval of an aquifer exemption removes a portion of a USDW from protection under the SDWA. Denial of an aquifer exemption impacts the Proposed Action Alternative and may render it infeasible. In addition, if waste fluid is planned to be injected into any of the formations above the Flathead through a Class I UIC well, a determination would need to be made as to whether these formations are USDWs. If they are, aquifer exemptions would be necessary. Requests for aquifer exemptions for Class I wells typically must demonstrate, among other things, that the exempted aquifer does not currently serve as a drinking water resource (i.e., no drinking water wells) within a defined radius of the Class I UIC disposal well, and that the disposed wastewater will not migrate outside of the aquifer exemption boundary. Additionally, if the USDW proposed for injection is found to be at or below 3,000 mg/l total dissolved solids, approval of such an exemption would be considered a substantial revision to the State's UIC program and require rulemaking signed by the EPA Administrator. We recommend that the Final EIS Table 1-2 indicate that the EPA would be responsible (per 40 CFR 144 and 146) for approving or denying any aquifer exemptions should a request be made by WDEQ to allow injection into the Class I wells.

Since Class I UIC wells are included in the Proposed Alternative, we recommend that the Final EIS confirm the ability of all receiving formations to receive injectate and include data from testing conducted in this regard. This information will be important in determining the viability of Class I disposal options.

The Draft EIS states that the WDEQ injection permit would require monitoring of groundwater conditions to establish baseline data and to ensure collection of information on migration and behavior of injected fluids. This information is not accurate. Current WDEQ Class I well permit monitoring requirements do not track the migration of the injected fluids or collect the in-situ water samples necessary to understand the geochemical behavior of the injected fluids in contact with the receiving formation. We recommend correcting this in the Final EIS and explaining that current Class I well monitoring requirements cannot detect unwanted migration of disposed wastewater beyond the permitted boundary.

Exploration Borehole Effects on UIC Class III ISR

More than 12,000 exploratory boreholes drilled in the existing Gas Hills mining district and the project area have penetrated the confining layers above and possibly below the production zone and may serve as conduits for unintended fluid migration. Unplugged boreholes could allow contaminants associated with injection fluids from Class III ISR operations to enter the aquifer. The EPA appreciates that the monitoring program for detecting excursions will identify the boreholes in the project area and the known geologic structures identified in the Draft EIS that may serve as pathways for unwanted

migration of fluids. We support disclosure in the Final EIS of plans for identifying and plugging boreholes that are shown to be hydraulically connected to the production zone.

Wastewater Disposal Options for the Resource Protection Alternative

The EPA recommends that the Final EIS further evaluate the UIC Class V wastewater disposal option for the Resource Protection Alternative. The potential significant impacts associated with exempting a portion of the Flathead aquifer from the SDWA for UIC Class I disposal would be avoided if the UIC Class V disposal option were selected. Under the Class V option, wastewater will be treated to reduce regulated contaminants to maximum concentration limits (MCLs) or background so that injection can be permitted without an aquifer exemption. The EPA recommends that the Final EIS evaluate onsite treatment using a combination of ion exchange, reverse osmosis, and radium settling followed by deep disposal in Class V injection wells, land application, or a combination of deep well disposal in Class V injection wells with land application during the irrigation season.

Phased Development

The Draft EIS Figure 2-3, Project Activity Schedule, shows that mine unit restoration and reclamation would be performed concurrently with production from adjacent operating units. It is our understanding that both the production process and restoration process may use the same reverse osmosis (RO) treatment unit(s). Since it is critical to sustain restoration activities without interruptions that could lead to excursions, we recommend including in the Final EIS a more complete description of the RO treatment capacity and associated RO production and restoration operational design capacity. We also suggest constructing a process water balance from this Schedule to determine production and wastewater demand for the RO units.

Air Quality

There are a number of inconsistencies between tables in the Draft EIS and Appendix E which make it difficult to confirm many of the air quality conclusions reached in the Draft EIS. For example, the annual PM emissions listed in Table 3-2 do not appear to be consistent with the emissions listed in Table 3-1. In another example, Appendix E, Table 3-4 lists four to eight drill rigs operating at any one time. However, Chapter 4 of the Draft EIS, Table 4.1-2 identifies up to 14 drill rigs could be operated simultaneously. In addition, Table 2-3 of Appendix E lists the emission factors used to calculate emissions of criteria pollutants from internal combustion engines. These emission factors appear to yield significantly higher emission rates than those presented in the total hourly criteria pollutant emission rates listed in Table 3-6 of Appendix E. Based on our reviewed of Appendix E, it appears that the Draft EIS underestimates maximum short-term emission rates for the activities conducted by the equipment in the emission inventory. We recommend that the BLM re-evaluate its emissions inventory and reassess whether substantial changes have occurred from any revisions to the Plan of Operations assumptions in the Proposed Action Alternative. Additional modeling may be warranted if the changes are significant.

The EPA has found from similar information in other ISR projects that there is the potential for short-term impacts associated with fugitive dust and NOx emissions. We recommend an adaptive management strategy to prevent adverse PM impacts by minimizing the magnitude and duration of PM emissions and by requiring lower-emitting technology for the drill rigs. The strategy could involve suppressing fugitive

dust during drilling with a stand-by water truck. Emission controls on the equipment exhaust gases such as catalytic oxidation converters and particulate filters with regeneration have been employed to mitigate adverse impacts at other ISR facilities.

Chapter 3 of the Draft EIS lists the Annual $PM_{2.5}$ NAAQS as being 15 micrograms per cubic meter ($\mu g/m^3$) (page 3.1-4). On December 14, 2012, the EPA lowered the NAAQS to 12.0 $\mu g/m^3$.[4] We recommend including the current NAAQS in the Final EIS.

The EPA recommends that Chapter 3 of the Final EIS include current information regarding NAAQS attainment within the State of Wyoming. In March 2009, the Governor of Wyoming recommended to the EPA that Sublette County and parts of northeastern Lincoln and Northwestern Sweetwater Counties be designated non-attainment for ozone due to exceedances of the 75 parts per billion ozone NAAQS. The EPA published final air quality designations for the ozone NAAQS in the Federal Register on May 21, 2012.

Water Resources

According to the Draft EIS, the Project potentially would impact 15 acres of wetlands along West Canyon Creek in Mine Unit 4, including the perennial reaches of the Creek. We recommend that the Final EIS explain that siting wellfields and crossing tributaries upstream of jurisdictional wetlands may require the applicant to obtain Clean Water Act Section 404 permits. The discharge of dredged and fill material into waters of the U.S. is permitted by the United States Army Corps of Engineers (USACE) with nationwide permits for construction activities (e.g., drilling wells, laying pipeline, and constructing access roads). The USACE may need to conduct additional environmental impact analyses to support issuance of CWA Section 404 permits associated with the project. In addition, it appears that some of the wastewater evaporation ponds may be within the 100-year floodplain as calculated in Table 3.15-2. The EPA recommends evaluating options to avoid discharge from these facilities during flood events.

We recommend including in the Final EIS any updates on the status of the USACE permitting process for the Gas Hills project, information on the specific acreages of wetlands that could be impacted and the identification of mitigation for impacts.

Table 3.15-4 presents average concentration data for background groundwater in the proposed mine units. The table includes a column showing the Wyoming Class III standards. We find the inclusion of these standards in this table to be confusing and without context. We recommend deleting these standards in the revised table in the Final EIS.

EPA's Rating and Recommendations

Consistent with Section 309 of the CAA, it is the EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. The Draft EIS does not identify a preferred alternative. Accordingly, we have rated the Proposed Action Alternative and the Resource Protection Alternative as "EC" - Environmental Concerns. We have rated the quality of the DEIS as "2"-Insufficient Information. The "EC" rating indicates that the EPA review has identified

---

[4] (http://www.epa.gov/airquality/particlepollution/actions.html)

environmental impacts that need to be avoided in order to protect the environment. The "2" rating indicates that the EPA review has identified a need for additional information, data, analysis or discussion in the Final EIS in order for the EPA to fully assess environmental impacts from the proposed project. A description of the EPA's rating system is enclosed.

We hope that our comments will assist you in further reducing environmental impacts of this project. We appreciate the opportunity to review and comment on the Draft EIS. If we may provide further explanation of our comments, please contact me at 303-312-6925, or your staff may contact James Hanley, at 303-312-6725.

Sincerely,

Suzanne J. Bohan
Director, NEPA Compliance and Review Program
Office of Ecosystems Protection and Remediation

Enclosure: EPA's Rating System Criteria

U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action*

Environmental Impact of the Action

LO - - Lack of Objections: The Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC - - Environmental Concerns: The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO - - Environmental Objections: The EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU - - Environmentally Unsatisfactory: The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the Final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 - - Adequate: EPA believes the Draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 - - Insufficient Information: The Draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new, reasonably available alternatives that are within the spectrum of alternatives analyzed in the Draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the Final EIS.

Category 3 - - Inadequate: EPA does not believe that the Draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the Draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the Draft EIS is adequate for the purposes of the National Environmental Policy Act and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised Draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.